

WHAT IS CLAIMED:

1           1.       An analgesic composition which comprises at least one analgesic drug in  
2       an extended release form in combination with an analgesia-enhancing amount of at least  
3       one nontoxic N-methyl-D-aspartate receptor antagonist in an immediate release form.

1           2.       The analgesic composition of Claim 1 wherein the nontoxic NMDA  
2       receptor antagonist is at least one member selected from the group consisting of  
3       dextromethorphan, dextrothorphan, memantine, amantidine, d-methadone and their  
4       pharmaceutically acceptable salts.

1           3.       The analgesic composition of Claim 1 wherein the nontoxic NMDA  
2       receptor antagonist is present in an immediate release carrier.

1           4.       The analgesic composition of Claim 1 wherein the analgesic drug is  
2       selected from the group consisting essentially of non-narcotic analgesics, coal tar  
3       analgesics, nonsteroidal anti-inflammatory drugs, gabapentin, substance P antagonists,  
4       capsaicin, capsaicinoids, and cyclooxygenase-II (COX II) inhibitors.

1           5.       The analgesic composition of Claim 1 wherein the weight ratio of the  
2       analgesic drug to the nontoxic NMDA receptor antagonist ranges from about 2:1 to about  
3       1:10.

1           6.     The analgesic composition of Claim 1 wherein the weight ratio of the  
2     analgesic drug to the nontoxic NMDA receptor antagonist ranges from about 1:1 to about  
3     1:5.

1           7.     The analgesic composition of Claim 1 wherein the analgesic drug is an  
2     analgesically effective amount of at least one opioid analgesic and the analgesic  
3     composition is substantially free of opioid antagonist.

1           8.     The analgesic composition of Claim 7 wherein the opioid analgesic is at  
2     least one member selected from the group consisting of alfentanil, allylprodine,  
3     alphaprodine, anileridine, benzylmorphine, bezitramide, buprenorphine, butorphanol,  
4     clonitazene, codeine, desomorphine, dextromoramide, dezocine, diampromide,  
5     diamorphone, dihydrocodeine, dihydromorphine, dimenoxadol, dimepheptanol,  
6     dimethylthiambutene, dioxaphetyl butyrate, dipipanone, eptazocine, ethoheptazine,  
7     ethylmethylthiambutene, ethylmorphine, etonitazene, fentanyl, heroin, hydrocodone,  
8     hydromorphone, hydroxypethidine, isomethadone, ketobemidone, levorphanol,  
9     levophenacymorphan, lofentanil, meperidine, meptazinol, metazocine, methadone,  
10    metopon, morphine, myrophine, narceine, nicomorphine, norlevorphanol, normethadone,  
11    nalorphine, nalbuphine, normorphine, norpipanone, opium, oxycodone, oxymorphone,  
12    papaveretum, pentazocine, phenadoxone, phenomorphan, phenazocine, phenoperidine,  
13    piminodine, piritramide, propheptazine, promedol, properidine, propoxyphene,  
14    sufentanyl, tilidine, tramadol and their pharmaceutically acceptable salts.

1           9.     The analgesic composition of Claim 7 wherein the opioid analgesic is at  
2     least one member selected from the group consisting of codeine, dihydrocodeine,  
3     hydrocodone, hydromorphone, levorphanol, meperidine, methadone, morphine,  
4     oxycodone, oxymorphone, propoxyphene and their pharmaceutically acceptable salts.

1           10.    The analgesic composition of Claim 8 wherein the nontoxic NMDA  
2     receptor antagonist is at least one member selected from the group consisting of  
3     dextromethorphan, dextrorphan, memantine, amantidine, d-methadone and their  
4     pharmaceutically acceptable salts.

1           11.    The analgesic composition of Claim 1 wherein the extended release form  
2     is an extended release carrier comprising a base material selected from the group  
3     consisting of a hydrophilic polymer, a hydrophobic polymer, a long chain hydrocarbon, a  
4     polyalkylene glycol, higher aliphatic alcohols, acrylic resins, and mixtures thereof.

1           12.    The analgesic composition of Claim 11 wherein the nontoxic NMDA  
2     receptor antagonist is applied to the extended release carrier's exterior surface.

1           13.    The analgesic composition of Claim 1 wherein the extended release form  
2     comprises a base material having a coating that controls the release of the analgesic drug.

1           14.    The analgesic composition of Claim 13 wherein the coating includes the  
2     nontoxic NMDA receptor antagonist.

1           15.    The analgesic composition of Claim 1 which is a liquid dosage form.

1           16.    The analgesic composition of Claim 15 which is an injectable dosage  
2 form.

1           17.    The analgesic composition of Claim 7 wherein the weight ratio of the  
2 opioid analgesic to the nontoxic NMDA receptor antagonist is about 1:1.

1           18.    The analgesic composition of Claim 7 wherein the daily dosage of opioid  
2 analgesic is from about 1 mg to about 800 mg per 70 kg body weight and the daily  
3 dosage of nontoxic NMDA receptor antagonist is from about 10 mg to about 750 mg per  
4 70 kg body weight.

1           19.    The analgesic composition of Claim 7 wherein the daily dosage of opioid  
2 analgesic is from about 10 mg to about 500 mg per 70 kg body weight and the daily  
3 dosage of nontoxic NMDA receptor antagonist is from about 30 mg to about 500 mg per  
4 70 kg body weight.

1           20.    The analgesic composition of Claim 7 wherein the opioid analgesic is  
2 selected from the group consisting of fentanyl and sufentanyl in a daily dosage of from  
3 about 100  $\mu$ g to about 6 mg per 70 kg body weight and the daily dosage of nontoxic  
4 NMDA receptor antagonist is from about 10 mg to about 750 mg per 70 kg body weight.

1           21.    An analgesic composition which comprises an analgesically effective  
2   amount of at least one opioid analgesic selected from the group consisting of codeine,  
3   dihydrocodeine, hydrocodone, hydromorphone, levorphanol, meperidine, methadone,  
4   morphine, oxycodone, oxymorphone, propoxyphene, tramadol and their pharmaceutically  
5   acceptable salts in an extended release form, and an opioid analgesia-enhancing amount  
6   of dextromethorphan in an immediate release form, wherein the analgesic composition is  
7   substantially free of opioid antagonist.

1           22.    The analgesic composition of Claim 21 wherein the dextromethorphan is  
2   present in an immediate release carrier.

1           23.    The analgesic composition of Claim 21 wherein the extended release form  
2   is an extended release carrier comprising a base material selected from the group  
3   consisting of a hydrophilic polymer, a hydrophobic polymer, a long chain hydrocarbon, a  
4   polyalkylene glycol, higher aliphatic alcohols, acrylic resins, and mixtures thereof.

1           24.    The analgesic composition of Claim 23 wherein the dextromethorphan is  
2   applied to the extended release carrier's exterior surface.

1           25.    The analgesic composition of Claim 21 wherein the weight ratio of the  
2   opioid analgesic to the nontoxic NMDA receptor antagonist ranges from about 2:1 to  
3   about 1:10.

1           26.    The analgesic composition of Claim 21 wherein the weight ratio of the  
2   opioid analgesic to the nontoxic NMDA receptor antagonist ranges from about 1:1 to  
3   about 1:5.

1           27.    The analgesic composition of Claim 21 wherein the weight ratio of the  
2   opioid analgesic to the dextromethorphan is about 1:1.

1           28.    The analgesic composition of Claim 21 wherein the daily dosage of opioid  
2   analgesic is from about 1 mg to about 800 mg per 70 kg body weight and the daily  
3   dosage of dextromethorphan is from about 10 mg to about 750 mg per 70 kg body  
4   weight.

1           29.    The analgesic composition of Claim 21 wherein the daily dosage of opioid  
2   analgesic is from about 10 mg to about 500 mg per 70 kg body weight and the daily  
3   dosage of dextromethorphan is from about 30 mg to about 500 mg per 70 kg body weight  
4   per unit dose.

1           30.    An analgesic composition consisting essentially of at least one analgesic  
2   drug in an extended release form in combination with an analgesia-enhancing amount of  
3   at least one nontoxic N-methyl-D-aspartate receptor antagonist in an immediate release  
4   form.

1           31.    The analgesic composition of Claim 30 wherein the nontoxic NMDA  
2   receptor antagonist is at least one member selected from the group consisting of

3 dextromethorphan, dextrorphan, memantine, amantidine, d-methadone, and their  
4 pharmaceutically acceptable salts.

1 32. The analgesic composition of Claim 30 wherein the nontoxic NMDA  
2 receptor antagonist is present in an immediate release carrier.

1 33. The analgesic composition of Claim 30 wherein the analgesic drug is  
2 selected from the group consisting essentially of non-narcotic analgesics, coal tar  
3 analgesics, nonsteroidal anti-inflammatory drugs, gabapentin, substance P antagonists,  
4 capsaicin, capsaicinoids, and cyclooxygenase-II (COX II) inhibitors.

1 34. The analgesic composition of Claim 30 wherein the weight ratio of the  
2 analgesic drug to the nontoxic NMDA receptor antagonist ranges from about 2:1 to about  
3 1:10.

1 35. The analgesic composition of Claim 30 wherein the weight ratio of the  
2 analgesic drug to the nontoxic NMDA receptor antagonist ranges from about 1:1 to about  
3 1:5.

1 36. The analgesic composition of Claim 30 wherein the weight ratio of the  
2 analgesic drug to the nontoxic NMDA receptor antagonist is about 1:1.

1           37.    The analgesic composition of Claim 30 wherein the analgesic drug is an  
2    analgesically effective amount of at least one opioid analgesic and the analgesic  
3    composition is substantially free of opioid antagonist.

1           38.    The analgesic composition of Claim 37 wherein the opioid analgesic is at  
2    least one member selected from the group consisting of alfentanil, allylprodine,  
3    alphaprodine, anileridine, benzylmorphine, bezitramide, buprenorphine, butorphanol,  
4    clonitazene, codeine, desomorphine, dextromoramide, dezocine, diampromide,  
5    diamorphone, dihydrocodeine, dihydromorphine, dimenoxadol, dimepheptanol,  
6    dimethylthiambutene, dioxaphetyl butyrate, dipipanone, eptazocine, ethoheptazine,  
7    ethylmethylthiambutene, ethylmorphine, etonitazene, fentanyl, heroin, hydrocodone,  
8    hydromorphone, hydroxypethidine, isomethadone, ketobemidone, levorphanol,  
9    levophenacymorphan, lofentanil, meperidine, meptazinol, metazocine, methadone,  
10   metopon, morphine, myrophine, narceine, nicomorphine, norlevorphanol, normethadone,  
11   nalorphine, nalbuphine, normorphine, norpipanone, opium, oxycodone, oxymorphone,  
12   papaveretum, pentazocine, phenadoxone, phenomorphan, phenazocine, phenoperidine,  
13   piminodine, piritramide, propheptazine, promedol, properidine, propoxyphene,  
14   sufentanyl, tilidine, tramadol and their pharmaceutically acceptable salts.

1           39.    The analgesic composition of Claim 37 wherein the opioid analgesic is at  
2    least one member selected from the group consisting of codeine, dihydrocodeine,  
3    hydrocodone, hydromorphone, levorphanol, meperidine, methadone, morphine,  
4    oxycodone, oxymorphone, propoxyphene and their pharmaceutically acceptable salts.



1           40.    The analgesic composition of Claim 37 wherein the nontoxic NMDA  
2    receptor antagonist is at least one member selected from the group consisting of  
3    dextromethorphan, dextrorphan, memantine, amantidine, d-methadone and their  
4    pharmaceutically acceptable salts.

1           41.    The analgesic composition of Claim 30 wherein the extended release form  
2    is an extended release carrier comprising a base material selected from the group  
3    consisting of a hydrophilic polymer, a hydrophobic polymer, a long chain hydrocarbon, a  
4    polyalkylene glycol, higher aliphatic alcohols, acrylic resins, and mixtures thereof.

1           42.    The analgesic composition of Claim 41 wherein the nontoxic NMDA  
2    receptor antagonist is applied to the extended release carrier's exterior surface.

1           43.    The analgesic composition of Claim 30 wherein the extended release form  
2    comprises a base material having a coating that controls the release of the analgesic drug.

1           44.    The analgesic composition of Claim 43 wherein the coating includes the  
2    nontoxic NMDA receptor antagonist.

1           45.    The analgesic composition of Claim 30 which is a liquid dosage form.

1           46.    The analgesic composition of Claim 45 which is an injectable dosage  
2    form.

1           47.    The analgesic composition of Claim 37 wherein the weight ratio of the  
2   opioid analgesic to the nontoxic NMDA receptor antagonist ranges from about 2:1 to  
3   about 1:10.

1           48.    The analgesic composition of Claim 37 wherein the weight ratio of the  
2   opioid analgesic to the nontoxic NMDA receptor antagonist ranges from about 1:1 to  
3   about 1:5.

1           49.    The analgesic composition of Claim 37 wherein the weight ratio of the  
2   opioid analgesic to the nontoxic NMDA receptor antagonist is about 1:1.